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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/583,433

06/19/2006

Manfred Fischer

710270-038

6659

7590

09/02/2008

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EXAMINER

PICKARD, ALISON K

ART UNIT

PAPER NUMBER

3676

MAIL DATE

DELIVERY MODE

09/02/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/583,433	<b>Applicant(s)</b> FISCHER ET AL.	
	<b>Examiner</b> Alison K. Pickard	<b>Art Unit</b> 3676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____.  | 6) <input type="checkbox"/> Other: ____.                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5 and 12-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Beyer (4,185,843).

Beyer discloses a piston ring having a base 1 with a contact surface 3 and upper and lower side surfaces. The contact surface is provided with a coating 2. (Requiring it to be applied by vapor deposition is a process in a product claim and given little patentable weight.) A portion of the surface is supplied with a removable cover (portion above line 12, which is removed). Once removed, a sharp edge is formed between the side and contact surface (col. 4, lines 37-38). The contact surface profile has a cross member 5. The profile is partly conical and includes a groove (near 9).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beyer in view of Iwashita (6,325,385).

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Beyer does not appear to disclose a chrome layer on the sides of the ring. Iwashita teaches a piston ring with coatings. Iwashita teaches using a chrome layer 5 to alleviate strain. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a chrome coating on the piston ring of Beyer to improve the strength.

5. Claims 1-7, 10-16, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beyer in view of Anderson (2,905,512) in view of Ishida (5,316,321).

Beyer discloses a piston ring and method comprising a base 1 with a contact surface 3 and upper and lower side surfaces. The contact surface is provided with a coating 2. A portion of the surface is supplied with a removable cover (portion above line 12, which is removed). Once removed, a sharp edge is formed between the side and contact surface (col. 4, lines 37-38). The contact surface profile has a cross member 5. The profile is partly conical and includes a groove/undercut (near 9). Beyer does not appear to disclose that the removable cover is applied outside the contact surface or is a strip/band. Anderson teaches an effective way of applying a coating only to desired locations on a piston ring.. Anderson teaches the use of applying masking 36 to desired location. The maskant is removed after the ring has been coated. it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the method taught by Anderson as such is known technique that would yield expected results.

Beyer also does not disclose the coating is Cr or N based and applied by vapor deposition (i.e. PVD or CVD). Ishida teaches a method of coating a piston ring. Ishida teaches that thermal spraying (of Mo, etc) is equivalent to PVD of a Cr or N based coating (see col. 5, lines 56-68). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention

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was made to use an equivalent technique such as PVD of a Cr or N based coating to protect the piston ring.

Regarding claims 7 and 18, neither Beyer nor Ishida appear to disclose the claimed coating thickness. However, it is not considered inventive to discover the optimum or workable ranges by routine experimentation absent some showing of criticality. See *In re Aller*, 105 USPQ 233, 235 (CCPA 1955). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the coating in the claimed thickness range.

6. Claims 8, 9 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beyer in view of Anderson in view of Ishida as applied to claims 1 and 15 above, and further in view of Iwashita.

Beyer does not appear to disclose a chrome layer on the sides of the ring. Iwashita teaches a piston ring with coatings. Iwashita teaches using a chrome layer 5 to alleviate strain. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a chrome coating on the piston ring of Beyer to improve the strength.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alison K. Pickard whose telephone number is 571-272-7062.

The examiner can normally be reached on M-F (9-5).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer Gay can be reached on 571-272-7029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Alison K. Pickard/  
Primary Examiner, Art Unit 3676

AP